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09/553,140	04/20/2000	Michael J. Berman	99-230	4444

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EXAMINER

BALI, VIKKRAM

ART UNIT PAPER NUMBER

2623

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/553,140
Filing Date: April 20, 2000
Appellant(s): BERMAN, MICHAEL J.

MAILED

JUN 16 2004

Technology Center 2600

Harold C. Moore
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 3/8/2004.

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(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

Appellant's brief includes a statement that claims 1-28 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) *Claims Appealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) *Prior Art of Record*

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6,361,646 B1

Bibby, Jr. et al.

3-2002

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-28 rejected under 35 U.S.C. 103(a). This rejection is set forth in a prior Office Action, mailed on 10/6/2003.

(11) Response to Argument

1. Claim 1:

Applicant argues that the reference fails to teach "high speed imaging or conversion as claimed".

Reference O'Boyle teaches a CCD device for imaging the wafer (see col. 3, lines 11-13), the specification in page 10, lines 6-8 calls for a CCD image device for imaging, therefore, the reference does teaches the claimed feature. Also, as detailed in the col. 3, lines 24-30 that the thickness is outputted by comparing the images of the wafer to the references, therefore, the reference obviously takes the images using the CCD and those images are considered to be the high speed imaging as called in the specification by the applicant.

Also, applicant argues that the reference fails to teach "during the polishing of the substrate". Reference O'Boyle in the field of the invention details "assembly and method for making in process thin film thickness measurements" (see col. 1, lines 6-8), also, in col. 2, lines 53-55 O'Boyle details that the assembly includes a CMP, and col. 3, lines 61-67 details that the measurement of a film thickness can be done an any other applicable process equipment making the process more efficient. Therefore, it is

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obvious that the reference O'Boyle does teach "during the polishing of the substrate" as claimed.

Reference O'Boyle does teach the conversion aspect of the claim. Reference in col. 3, lines 27-29, details that the image is compared and then the thickness of the film is outputted during the CMP. This obviously seen as converting the image into the thickness of the wafer.

2. Claims 2-6

No arguments are given regarding the claims 2-6.

3. Claim 7

Claim 7 depends from claim 1 therefore, all the arguments set forth for claim 1 does apply here also. In addition, applicant argues that the "combination of O'Boyle and Bibby is improper". In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, reference of O'Boyle discloses the invention substantially as described in the action and also as defended above in the response to the arguments for claim 1. However, the

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reference Bibby was only introduced to show that the image is made up of number of pixels as detailed in col. 7, lines 22-24, and therefore, the limitation of claim 7, "converting pixels of the acquired image to the layer thickness" is met.

4. Claim 8

Claim 8 depends from claim 1 therefore, all the arguments set forth for claim 1 does apply here also. In addition, applicant argues that the reference of "O'Boyle does not teach In Situ thickness determination as claimed". "Insitu" as defined in the Webster's II, New riverside university dictionary define as "in its original place", and the reference O'Boyle discloses a thickness determination of the layer within the system of CMP, i.e. in its original place, without taking the wafer out and calculating the thickness and putting the wafer back in to the CMP process or assembly (see col. 4, lines 47-50). Therefore, the limitation as claimed is disclosed in the reference O'Boyle.

5. Claim 9

The limitation argued by applicant is same as the limitations as argued by the applicant in claims 1 and 8. Therefore, the arguments given by the examiner apply. And, therefore, the claim 9 stands rejected.

6. Claims 10-11 and 13-14

No arguments are given regarding the claims 10-11 and 13-14.

7. Claim 12

No arguments are given regarding the claim 12.

8. Claim 15

The limitation argued by applicant is same as the limitations as argued by the applicant in claim 1. Therefore, the arguments given by the examiner apply. In addition, applicant argues that the "combination of O'Boyle and Bibby is improper". In the instant case, O'Boyle discloses the invention substantially as disclose and as described above for claim 1. And, Bibby in endpoint detection for CMP teaches stopping CMP when the layer measurement is at a predetermined value, (see figure 6, and col. 12, lines 39-45) in the section Bibby detailed that the process can be stopped once the thickness of the wafer is at a predetermined value. The two references are analogous because they are solving similar problem of CMP. Therefore, one ordinary skilled in the art at the time of invention can simply combine the two i.e. the teachings of stopping the method one the thickness of the wafer is at the predetermined value can be incorporated in to the O'Boyle system of CMP. The motivation of doing this will be determining when an end point has reached (see Bibby col. 2, lines 63-68).

9. Claims 16-20

No arguments are given regarding the claims 16-20.

10. Claims 23-28

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The limitation argued by applicant is same as the limitations as argued by the applicant in claim 15. Therefore, the arguments given by the examiner apply. And, therefore, the claims 23-28 stand rejected.

11. Claim 21

Claim 21 depends from claim 15 therefore, all the arguments set forth for claim 15 does apply here also. In addition, applicant argues that the reference "combination of O'Boyle and Bibby is improper", as argued in claim 7 arguments. Examiner disagrees and would like to bring the attention to the section 3 above for responding to the arguments of claim 7.

12. Claim 22

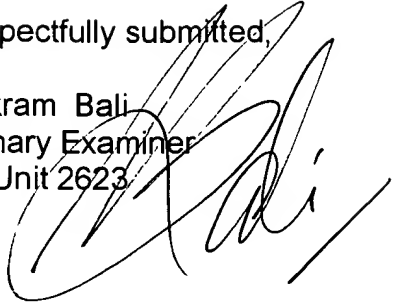
Claim 22 depends from claim 15 therefore, all the arguments set forth for claim 15 does apply here also. In addition, applicant argues that the reference of "O'Boyle does not teach In Situ thickness determination as claimed", as argued in claim 8 arguments. Examiner disagrees and would like to bring the attention to the section 4 above for responding to the arguments of claim 8.

For the above reasons, it is believed that the rejections should be sustained.

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Respectfully submitted,

Vikkram Bali
Primary Examiner
Art Unit 2623



vb
June 10, 2004

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